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**From:** CN=Kenneth Gigliello/OU=DC/O=USEPA/C=US [CN=Kenneth Gigliello/OU=DC/O=USEPA/C=US]  
**Sent:** 4/23/2010 12:44:07 PM  
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**CC:** Everett Bishop [Bishop.EverettLNDU@usepa.onmicrosoft.com]  
**Subject:** Epigenetics Research Expected to Help Identify, Monitor Environmental Risks

First I heard of this. Pretty interesting. Not sure how compliance and enforcement might use the information, but it appears to have some potential.

### **Epigenetics Research Expected to Help Identify, Monitor Environmental Risks**

The emerging field of epigenetics can help find links between human health risks and toxic chemicals in the environment by observing changes in the "packaging" of DNA molecules that influence gene expression, Linda Birnbaum, director of the National Institute of Environmental Health Sciences, told a House subcommittee April 22.

"Studies indicate that exposures that cause epigenetic changes can affect several generations [and] this new understanding heightens the need to protect people at critical times in their development," Birnbaum, a toxicologist who also heads the National Toxicology Program, told the Energy and Commerce Subcommittee on Health.

Epigenetics is the study of changes in gene expression that can be inherited but occur without changes in genetic structure, as in genes that can be switched "on" or "off."

#### **Early Environmental Risks**

Birnbaum also said that epigenetics research is revealing new information about environmental influences in early human development.

"Development processes that occur at fetal and early life stages are especially vulnerable to disruption from relatively low doses of certain chemicals," she said.

"Environmental health science is advancing at a tremendous rate," she added.

Birnbaum and Henry Falk, acting director of the National Center for Environmental Health and the Agency for Toxic Substances and Disease Registry in the Centers for Disease Control and Prevention (CDC), testified at the hearing on the Department of Health and Human Services' (HHS) role in studying, tracking, and addressing the effects of environmental factors on human health and illness.

### **Network Tracks Health Hazards**

Falk, a pediatrician and public health specialist, said the CDC's web-based National Environmental Public Health Tracking Network merges environmental and public health data in a central database that can be used to analyze the relationship between environmental hazards and health effects.

The National Environmental Public Health Tracking Program, which includes the network, provides funds to 22 states and New York City for building and maintaining local surveillance systems for data on noninfectious health conditions and environmental hazards, Falk said.

On climate change and health, Falk said that although scientific understanding of the health effects of global climate shifts is still emerging, "there is a need to prepare for potential health risks as well as promote health-supporting adaptation and mitigation strategies."

Rep. John Dingell (D-Mich.) said the hearing would help give committee members "a better understanding of the connection between the environment and human health."

Subcommittee Chairman Frank Pallone Jr. (D-N.J.) asked the witnesses what Congress could do to help research into links between health and environmental pollution.

Falk said researchers need better means for monitoring disease and better data on chemicals in the environment.

By Bill Pritchard

*Written testimony from the Energy and Commerce Subcommittee on Health is available at*  
*[http://energycommerce.house.gov/index.php?option=com\\_content&view=article&id=1964:the-environment-and-human-health](http://energycommerce.house.gov/index.php?option=com_content&view=article&id=1964:the-environment-and-human-health)*